BOOK REVIEW

ASSISTED FERTILIZATION AND NUCLEAR TRANSFER IN MAMMALS

Edited By Don P. Wolf, Mary Zelinski-Wooten (Oregon Regional Primate Research Center, Beaverton, OR); Humana Press , Totowa, New Jersey, 2001, 305 pages, hard cover, US $ 145.00 ; E-mail : humana@humanapr.com

Under the edition of M.B.Zelinski-Wooten and Don P. Wolf the courageously conceived book rised up about sexual and asexual reproduction. The book is written by 26 autors from distinguish partes of assisted reproduction (AR) mostly for practitioners of clinical assisted reproduction technics, people responsible for animal care, research scientists and also beginers and students. The treatment of subject from both basic scientist´s and practicing clinician´s perspective in an effort to encourage communication between these sometimes diverse groups is interesting .

Very valuable are extensive historical introductions and detailed bibliographies in all cases. Technology developed in the course of animal IVF experimentation should provide a good basis for further advances, especially ICSI, cloning and improved means for genetic engineering in animals. Refinements in animal IVF systems promise better ways to test for the contraceptive development and models for improving assisted human reproduction.

There are chapters about the state of an art of the research in the sphere of the nuclear and thw cytoplasmic maturation, through in vitro oocyte maturation /IVM/ to parts devoted to absolutly practical problems of the embryo transfer, problems of transport IVF centers and cloning of mammals. Exactly cytoplasmic maturation, the area in which our knowledge is most lacking, may hold the keys to bridging the gap between the oocyte meiosis basic science research and clinical implementation of IVM as a human-assisted reproductive technology. Without the complete knowledge of in vivo processes that regulate the oocyte nuclear and cytoplasmic maturation and embryonic developmental competence, it will be quite difficult to identify, understand, and remedy the shortcomings within the human IVM system.The ultimate goal of the basic researche should focus on the acquisition of knowledge and the implementation of this knowlledge into the clinical protocols that promote high live birth rates from IVM/IVF.

A total of 17 chapters is divided into two parts. In Part I - Assisted fertilisation – 3 sections are devoted to the animal reproduction, 6 sections to human aspects of assisted reproduction a 4 sections have generaly technical character. Special sections are devoted to the sphere of the quality control of reproductive laboratories. The position of this chapter becuase of the express situation, regulations and standards of US institutions is different. Part II is very actual because of the cloning technology and ethics of cloning. The birth of Dolly, the first mammal cloned from adult cell, has focused much attention, both scientific and public. Autors are discussing several aspects of micromanipulation technologies, analysing cell biology of the nuclear transplantation, including the development of an understanding of the nuclear reprogramming and the investigation of the consequences of combining two different cells into one. Applications of the use of adult cells as donor nuclei in cloning can range from duplication of valuable animals or animals with an unique characteristic, to species that survive in limited numbers. Recovering endangered species is an enormous challenge that may have

profound ecological, economic, and social consequences.

"Somatic-cell clonning in human seems very unlikely in the forseeable future" is an opinion of Don P. Wolf, autor of the last chapter of this practical book. The risk to the embryo/fetus is unacceptably high and there is no persuasive reason to clone. Although the nuclear transfer is an integral step in the somatic-cell cloning, the procedure needs not be restricted to cloning.

Four different applications of the nuclear transfer in the tretment of the muman disease will be considered that are clearly therapetic in the nature. The first technique now widely practiced in the clinical ART for a treatment of the male infertility is ICSI, in which the nuclear transfer is used to place a haploid cell nucleus into an intact oocyte.The second is a germinal vesicle transfer, addreses the alleviation of the infertility secondary to advanced maternal age in which an increase in aneuploidity is seen. A third application of the nuclear transfer is in the treatment of patients at a risk for transmitting genetically based mitochondrial disease. The fourth application is the polar body transfer, especially for the patients of the advanced maternal age. The current alternative for women in this age the category is only to participate in an egg-donor program but such oocyte donation does not allow a genetic contribution from the female member of the infertile couple.

Jozef Války

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